THE·CONDOR
A·MAGAZINE·OF
WESTERN·ORNITHOLOGY·

Volume XV | May-June, 1913 | Number 3

A STUDY OF THE NESTING OF THE MARSH HAWK

By ARETAS A. SAUNDERS

WITH SIX PHOTOS BY THE AUTHOR

IN THE prairie portion of Teton County, Montana, the Marsh Hawk (*Circus hudsonius*) is the most abundant of all the hawks. During the nesting season of 1912 I was fortunate in finding a nest of this species so close to town (Chouteau, Montana) that I could make observations upon it almost daily. In the near vicinity of this nest was one of the Short-eared Owl, an owl that is almost equally abundant with the Marsh Hawk in this region. My observations on the nesting of the Short-eared Owl are elsewhere recorded in the pages of THE CONDOR (this issue, page 121). The nesting habits of the two species are in general quite similar, each being the only North American species of its family that nests on the ground. In comparing the two species, however, I found that while the general nesting habits are much alike, in many of the details they are quite dissimilar.

The Marsh Hawk arrives in this region usually some time in the month of April, adult males usually being seen a week or two in advance of the females. Courtship evidently begins as soon as the females arrive, and may be witnessed frequently during the latter part of April and early May. I have usually observed it along the borders of a stream, where a group of cottonwood trees flank a broad open meadow. The female sits in one of the cottonwood trees and watches the performance of her mate. He flies back and forth across the meadow at a height varying from about fifteen to fifty feet above the ground. He first flies upward with much flapping of his wings till he reaches the fifty-foot height, then turns in the air with a curious motion that displays first the white rump and then the white of the wing-linings and underparts, and flaps down again to the fifteen-foot level. Then he turns and rises again, and continues thus, up and down,

across the meadow, for some time. As he rises upward he calls four or five short squeaky-sounding notes, "eh—eh—eh—eh—eh", but when he flaps downward again, he is silent. The female usually sits silently watching the performance, but occasionally calls to him with a loud scream. If he flies too far away, she sometimes leaves her perch and sails silently after him to a point where she can get a nearer view of his performance.

Nesting in this region evidently begins in the latter part of May. I first observed the pair, whose nest is the subject of this study, in the vicinity of where they nested on May 22. The nest was not found until May 27, when it contained but a single egg, evidently just laid. The nest was merely a hollow in the ground lined with a few grasses, and located under a thick clump of cinquefoil bushes. Another nest of this species was found May 26 with a single egg, so that this is probably about the average time when nesting of this species begins in this region. This other nest was built of small sticks, lined with grasses, and placed in the midst of a cattail marsh.

Fig. 26. NEST AND INCOMPLETE SET OF EGGS OF THE MARSH HAWK; PHOTO TAKEN JUNE 6, 1912, NEAR CHOUTEAU, MONTANA

Eggs are not laid daily, but evidently at irregular intervals averaging about once in two days. The first nest, found May 27, had still but one egg on the evening of May 28. I was away from the vicinity from that date until June 6, but on my return found five eggs in the nest, and on a second visit that evening, six eggs. The sixth egg completed the set.

During the period from June 6 to 30 the female incubated almost constantly; in fact I never went to the nest when she was not there. The male bird did not incubate at all, to my knowledge, as the male of this species is sometimes said to do. He was usually in the vicinity of the nest, but sometimes away hunting. Both birds were always much disturbed at my presence, but the male was much the more aggressive. This was also true of the birds at the second nest mentioned above. The male usually saw me when I was a considerable distance from the nest, and flew toward me, circling about my head, and calling "eh—eh—eh—eh—eh", at short intervals. As I got nearer the nest he grew bolder, and often swooped at my head. He never actually struck me in these swoops, but often came within two or three feet, and I believe he might have struck me with his feet, had I not frequently waved my hat or camera tripod at him, which had the effect of somewhat decreasing the ardor of his attacks. In his attacks he usually circled till fairly close to me, then with a sudden, savage twist in his flight, lowered his feet as though to strike me with them, and swooped directly at my head. The female did not rise from the nest until I was ten or fifteen feet away,

then she rose and circled about my head, calling in the same manner as the male. At first she never swooped at my head, but later, particularly after the young had hatched, she did so, but never in quite the same swift, savage, and unhesitating manner as her mate.

Fig. 27. YOUNG MARSH HAWKS AGED TWO AND THREE DAYS; ONE OF THE TWO EGGS WAS ON THE POINT OF HATCHING; PHOTO TAKEN JULY 4

During the latter part of June it seemed as though the male had learned to distinguish me from other people as the particular disturber of his home, for he attacked me frequently when I was a long distance from his nest, and often not headed in that direction. Once I was surprised to have him swoop suddenly and silently at my head while I was hunting for a curlew's nest, more than a mile from his own. The male curlew soon spied him, however, and drove him quickly away. On three different sides of his nest, all within a hundred yards of it, were three Kingbird's nests, and the owners of these nests did their best to make his life miserable every time his attacks on me led him too close to their homes.

During the period of incubation the male evidently fed his mate. At least he was out on hunting trips part of the time, and once, when he was away at my arrival, he returned while I was setting up my camera for a photograph, carrying a mouse in his claws. As soon as he saw me, he dropped the mouse and flew swiftly up to attack me. Later I picked up the mouse and examined it. Its head had been removed and there was a large hole evidently made by the hawk's claw in its side. After the young hatched the male evidently spent much of his time hunting, for I saw very little of him around the nest. In fact I did not see him at all after July 4. It is quite possible that he was shot about this time, for it seemed strange that I should see nothing at all of him after that. He was a particularly handsome bird. His plumage was perfect and his flight was always swift, graceful and beautiful. His larger mate, in comparison, always seemed clumsy. There were ragged holes in her wings and one tail feather hung loose, showing that she had evidently recently encountered a charge of shot.

Fig. 28. YOUNG MARSH HAWKS AGED 12 AND 13 DAYS; PHOTO TAKEN JULY 14

On the evening of June 30, I stopped to look at the nest and found three of the eggs pipped and about to hatch. On the morning of July 1, I found that the three young had emerged. They were well covered with down above, but rather sparsely so below. The down on the upperparts was almost white, but with a slight buffy cast, while that of the underparts was pure white. The skin was light pink and, showing through the down, gave the young birds a pinkish appearance. The eyes of one of the birds were closed, but those of the other two, just beginning to open. This, with similar observations made on the birds born later, showed that young Marsh Hawks are evidently born with the eyes closed, but that they open within a few hours. This is a contrast to the young Short-eared Owls, whose eyes did not begin to open until they were six or seven days old.

The fourth young Marsh Hawk hatched before the morning of July 2, the

Fig. 29. YOUNG MARSH HAWKS AGED 23 DAYS; PHOTO TAKEN JULY 24

fifth on the afternoon of July 4, and the sixth on July 7. In the case of the sixth bird the exact date of laying of the egg and hatching was known, and the period of incubation was 31 days. Since the first three eggs hatched at about the same time, it is probable that incubation did not begin until after the third egg was laid. On July 4 I took the first photograph of the young, then two and three days old, at a time when the fifth egg was pipped and about to hatch.

For the first six or seven days the young showed no change in appearance except that they grew larger and became somewhat more active. On July 8, just after the youngest bird had hatched, I noted that the oldest birds were about three times the size of the youngest. About July 10 the two youngest birds disappeared, probably having died. I believed that this was because they were so much smaller and weaker than the four older birds that they were unable to get their proper share of food.

Sheathed feathers began to appear in the oldest birds at the tips of the wings on July 8, when they were seven days old. On July 14, when twelve and thirteen days old, the birds began to show fear and crawled back into the cinquefoil bushes when I approached. When I attempted to handle them, they sat up and threatened me with their beaks, and called in a high, squeaky, baby voice. On July 17 the feathers at the tips of the wings began to break the sheaths, and sheathed feathers were appearing thickly on back, shoulders, breast and tail. At this time the feet and cere were beginning to turn from a light pinkish color to yellow. On July 22 the feathers were breaking the sheaths in many places, those at the tips of the wings being broken for about two inches of their length. The feet and cere were now bright yellow. The birds stood with outstretched wings and open beak, turning to face me no matter to which side of the nest I went. They were in about the same condition on July 24, so that I found it almost impossible to handle them. When I attempted a photograph of them they crawled off into the bushes, so that I could only get two at a time in the picture.

Fig. 30. THE LAST YOUNG HAWK TO LEAVE THE NEST, AGED 33 DAYS; PHOTO TAKEN AUGUST 4

During the week following this the birds changed rapidly. Feathers unsheathed all over them, and much of the white down came off. On August 4, when the birds were thirty-three and thirty-four days old, I approached the nest and found three of them able to fly a little. One rose at my approach and flapped away for about 150 feet before it sank in the grass. When I first saw it rise, I thought it the mother bird until I had had time to note the fresh plumage and absence of holes in the wings. Two others rose after this one and flew a short distance. I caught one of these, and took my last photographs of it and of the bird that had remained in the nest. This was my last visit to the nest and my last sight of the birds, as I left on a trip into the mountains the next day.

Fig. 31. YOUNG MARSH HAWK AGED 34 DAYS; PHOTO TAKEN AUGUST 4, 1912, NEAR CHOUTEAU, MONTANA

The food of these hawks was largely mice and other small rodents, but not entirely so. I sometimes found Meadowlark feathers around the nest, and once the wing, foot and breast-bone of a young Sharp-tailed Grouse. I often found well-picked bones of various small animals in the nest, and believe that the young usually picked the meat from the bones rather than swallow the animals whole, as the young Short-eared Owls did. They also apparently did not swallow fur, feathers and bones so frequently as the owls did. I found a few ejected pellets around the nest when the young were pretty well grown, but they were much smaller than those about the owls' nest, and there were very few of them.

THE WILD TURKEYS OF COLORADO

By WELLS W. COOKE

WITH MAP

THE turkey was first formally included in the list of Colorado birds by Ridgway in 1873 (*Bull. Essex Inst.*, p. 179) under the name of *Meleagris gallopavo* which at that time meant a turkey similar to the Kansas bird. To this was added by Morrison (*Orn. & Ool.*, 1888, p. 70) *Meleagris gallopavo mexicana*, from La Plata County, to represent the form of turkey found in southwestern Colorado. These two forms remained unquestioned in the Colorado list until 1900 when the Rocky Mountain turkey was separated by Nelson as *merriami* (*Auk*, 1900, p. 120). An examination showed that every specimen of a turkey in all the Colorado collections belonged to the new form, even one taken near Canyon City, where the eastern bird had been supposed to occur.

In referring to this matter in THE CONDOR for July, 1912, I said: "The only claim the form (i. e., the eastern turkey) has, rests on the assumption that the birds of southeastern Colorado (where the species was very common a hundred years ago) must have been the same as the birds a little to the eastward in Kansas and Oklahoma. As the species is now supposed to be extinct in that part of Colorado, it is probable that the matter never can be settled."

During the last few days I have had occasion to go over the whole matter again and have become convinced that the assumption of a continuous range of turkeys from Kansas and Oklahoma to Colorado is erroneous. Lieut. Pike in 1806 found turkeys enormously abundant along the Arkansas from the foothills to the site of the present town of Pueblo. In 1820 Maj. Long finds them common at the junction of the Las Animas and Arkansas rivers. There his party divided, and Say's division which followed down the Arkansas does not report seeing turkeys until they had passed far into Kansas to about where Wichita is now. Maj. Long's party went south into New Mexico and crossed the northeastern part of that State to the valley of the Canadian River; he does not record turkeys until after he reached the Canadian River in Texas some twenty miles west of the present town of Tascosa, that is, he saw no turkeys during the whole time he was in New Mexico. As his party was living on stale horse meat, and had hunters out all the time, it is safe to assume that they would have found turkeys had there been any present.

In 1846 Lieut. Abert spent a summer in this same region. He speaks of the